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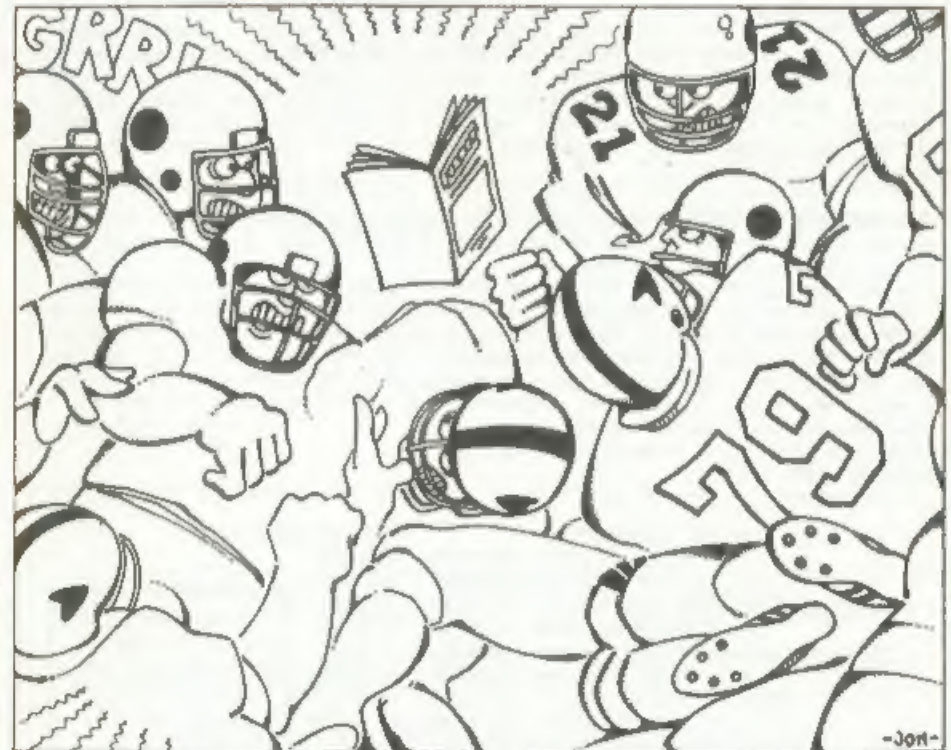
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Vol.5 - No 7.

March 1992.

# FORMAT

FOR SPECTRUM AND SAM USERS



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# sd software



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# NEWS ON 4

## SAM GAMES DESIGNER

GAMES MASTER is a games designer for the SAM Coupé to be launched this month by Dr Andy Wright. It provides a complete development environment for editing sprite graphics, animation sequences, movement patterns, sound effects, palettes, control keys and collision actions.

Game features will be controlled by a simple, but lightning-fast, compiled language that will work with Basic or on its own. Completed games will be stand-alone CODE programs, making it possible to write commercial software.

Very large sprites, up to a quarter of the screen, are possible with as many as 100 sprites on screen at once, on multiple collision planes. Sprites can pass over backgrounds and behind other sprites or foreground scenery, with smooth pixel movement. True collision detection on the actual edge of the sprite shape is provided. Stereo sound effects can follow the sprites around the screen. The sprite shapes can be irregular and even contain holes. You will be able to grab sprites from any mode 4 screen, or design them using the editor.

You will be able to write platform games with moving belts, or arcade-type games with missiles, meteors and explosions, or design something completely original.

The package should be on sale from Betasoft in early March, and will cost £20-£25. For more details send a SAE to Betasoft, 24 Wyche Avenue, Kings Heath, Birmingham, B14 6LQ.

## SAM ESPANIA

A new Spanish company called Rodel have placed a large order for SAM Coupés. Rodel, formed by Prosys and Gamma who are already well known in the Spanish computing field. Have ordered 2500 machines to be delivered before Christmas.

Based in Palencia, 200 miles north of Madrid, the company plan to launch

a Spanish version of SAM in May. The manual and promotional literature are being translated and the keyboard will be altered for the local market.

One of Spain's leading software companies, Codigo, are already working on SAM software most of which will also appear in English versions.

## ZX92 - THE EVENT OF THE DECADE

The Spectrum's 10th birthday will be celebrated in style. A bash, masterminded by Simon Goodwin - long standing writer on all matters Speccy, will take place on the 2nd May in Cambridge.

For full details, a world exclusive to FORMAF, see the news special in this issue.

## SAVE OUR SOFTWARE

The glossy games mag 'Your Sinclair' has launched a campaign to lobby software companies to continue producing Spectrum Software.

The March '92 issue of YS contains a letter for readers to photocopy (or cut out) and send to a software company of their choice. YS provides a list of the names and addresses of seven of the top UK software companies plus one in Spain.

Several companies, including Ocean, have hinted that they plan to stop the production of full priced Spectrum software. Although the Spectrum's share of the total software market is still high, it is in third place behind the C64 and the Amiga when you talk in terms of turnover, most of the sales are in budget brands. It is up to all Spectrum owners to raise their voices and prevent the rot going any further. While YS's letter is written in their usual style, you should all start writing your own letters to software companies - help save Spectrum software.

News Credits: Simon Goodwin, Barry Marshall

The last 10 days have been a bit of a disaster. Just as I start work on this months issue my ink-jet printer breaks down. Now the printer is two years old and this is the first time there has been any problem - but of course it would happen at just the wrong time. The printer is a Mannesmann Tally MT91, this is a 48 pin ink-jet printer so it makes dots by firing tiny bubbles of ink at the paper. I chose it originally because, at the time, it was cheaper than a laser printer (£799+vat) and it is a lot quieter than most lasers.

With an ink-jet printer there is little to go wrong, so when the guarantee ran out I did not bother to get a service contract. Still, a little phone call to Man-Tally to get an engineer would soon fix things. Friday, 3pm, ring MT, explain problem. "Our MT91 expert will ring you back", 4pm and he's on the phone. Lots of 'remote testing' and the sad news is "Looks like the ink flow sensor is faulty, you need to send the printer in for service", "but I need it urgently" I reply. "Well you could request an on-site call but as it is now after 4.30 that department has closed. Ring first thing Monday."

Monday morning, 8.30am (boy it hurt me getting up that early, "Yes, an engineer can call to fix your printer. Sir, the cost will be £110 plus VAT for the first two hours labour (or part thereof) and that includes travelling time. If any parts are needed they will be charged for, any extra repair time is charged at £55 per hour."

Picking myself up off the floor, I had to agree, the printer needed fixing or there would be no more FORMAFs to keep you readers happy. Well, to cut a long story short, chargeable customers go to the bottom of the list - so it was Friday before the first engineer called, over an hour later he left with the message "will be back Monday with a part." Monday, no engineer. Tuesday, after a phone call to MT, another engineer turns up and fits part. Yes, you got



it, printer still faulty. Engineer spends long time on phone to MT and eventually decides to take printer back to Wokingham. "We will repair it tomorrow morning and get it back to you by mid-afternoon" he says, reluctantly I agree. It was actually Thursday morning before it came back, but at least it is now fixed (or you wouldn't be reading this). Still it does mean that this issue has had to be rushed to get it to the printer on time. Result, it is smaller than usual and I have had to hold a couple of items over to next month. The moral of this story is either always have a working reserve for any important item, or take out a service contract.

Both in the letters and help page this month there are references by readers to bugs they think exist in SAM Basic. With v3 of the ROM there are still a few known bugs, most of which are cured when MasterDOS or MasterBasic are loaded. It doesn't matter how long you spend testing a system - as soon as you give it to someone else they will find something you missed (I remember well the bugs in the original ST). It is becoming very confusing (for me at least) trying to keep up to date with what is going on. Many of the "bugs" people have told me about are either not reproducible or they have turned out to be simply restrictions. An example was the POKE MEMS restriction that was looked at last month.

However, it would help to compile a full list of "bugs". So, H E L P... Report any problems you still find, make sure you give full details (listing please) of how to reproduce the bug and say if MasterDOS/Basic is installed (and their version if they are). If I can reproduce the problem I will print details in a future issue as well as pass the problem on to Dr Andy Wright.

Bob Branchley, Editor.



# SHORT SPOT

By: John Wase.

## Software for the SAM COUPE

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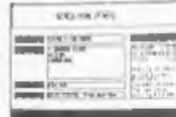
8088 Machine code, 64 col friendly autoedit editor for easy & speed rewrites all the rest of program. Data compressed allowing:  
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SC ASSEMBLER is a VERY EASY TO USE editor assembler. Just type in the text when with no spacing and SC ASSEMBLER will reposition and do a comprehensive check. If any errors display in clear english what is wrong. Easy enough for the beginner, yet powerful enough for top programmers who have already used an assembler to program Top Sam games with Source files to get you started and a professional programmer 25 page Manual you can't go far wrong.

#### MAIN FEATURES

8088 Machine code, Data compressed allowing flexible capacity storage (variable Sam) and (fixed) 28K Sam. Display a different Mode 2 layout you define fields of any size, col, position and check. Add sorting on any field, search buffer find records you want. Layout into 9 different layouts.



SC FILER the Database program, is a very easy to use, yet powerful and flexible enough to keep any type of information you need, from a simple Address file to business files for clubs and small companies. From a touch of a key you can add, edit, insert, wipe, list and search, also SC FILER can be used as a mini word processor with its word wrap, justify missing features. SC FILER comes with a 28K demonstration 28K NO database and a 20 page professional Manual. I also give priority to my 8088 and 8085 Address Manager files to use in SC FILER.

### SC MONITOR

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**WATCH THIS SPACE**  
COMING SOON FEBRUARY 1992  
ANOTHER POWERFUL UTILITY PROGRAM  
TO DEBUG AND EXAMINE MACHINECODE

SC AUTOBOOT is a NEW CHIP TO FILE IN and replace the Sam Rom. When you put into the Sam Coupe there is no time wait for Sam to load, you need to press F5 to boot up the system box.



Just switch on the Coupe and in 10 seconds it reloaded 28K Source Address and data on internal. Reformat like the other and start up. Have you got an old rom still filled in your Sam that have an no password key to update in no time chip with basic, text and machine code and random 100% compatible with most modern Sam. All chips which follow competing customer software to work with 100%. Type on your Sam PRINT PEEK 10 of the number printed on the screen to see. So then you know an old rom. The chip is easy to fit with only 40 pins connections. All you need is a small soldering and finished accuracy that you probably get in your garage.

£1.50

### SC\_PD1



### DISCS

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### SC\_PD2

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Hi, folks. February's a bit sombre this year. Went up to the All Formats in its new venue at Donington Park. Super venue, very few punters. Lousy journey in the fog up the M42 myself. I guess all the other punters are still stuck in the pea soup, fighting it out. Perhaps that accounts for the general paucity of post this month. However, there's still a few interesting snippets to delight you and confuse me. For instance, Gilbert Jackson of Neol Pantygored, Creigiau, Cardiff, mentions that the program that David Stokes introduced me to (Jan 92) which draws pots unfortunately cannot cope with a pot having 10 sections in which the first section has radius zero, and the rest, say, 100. A remedy is to amend line 5 to read:-

FOR h=35 TO 145 STEP 110/num

so that the  $s=w(i)/3$  becomes unnecessary. In addition, his line 6000 demonstrates a peculiar effect if  $st$  is replaced by, say, 80, and  $w(i)$  by zero (meaning radius=0). A command GOSUB 6000 then shows that DRAW 0,0 produces an 8-pixel horizontal line, which is clearly not the intended effect. This peculiarity can be removed by inserting "DRAW OVER 1: -254.0" after the DRAW INK 7: 254.0.

Many thanks, Mr Jackson.

Next, a shout for help from Mr V. H. Taylor of Weymouth, Dorset. He says that whilst he enjoys "Short Spot", the problem for him is how to tell if a listing is suitable for SAM. It's a lot of hard work to type in a listing and find after struggling to debug it that it won't ever work. He suggests that we could put "Spectrum only" at the start of listings which were specific. Actually, Mr Taylor, this arises because I'm so used to these little beasts that I forget other

people aren't. There are very few situations which prevent Spectrum programs from running on SAM. The first one is if it loads a piece of Spectrum-specific code; if there's a piece of code being loaded, it's usually OK unless it's making calls to the ROM or doing something with the screen. Watch out for this. It's usually fairly easy to find out if this is likely to happen - if so, avoid the program until you've more experience.

LOADS and SAVES to devices like Discovery, Microdrive or PLUS D will need their syntax modifying - again, avoid these until you are sure what you are doing. Very early Spectrum programs used "COPY" to copy a screen to Uncle Clive's dinky little printer. Some of the larger Spectrums also use this to do something a little different. Microdrives and Discovery used a syntax very like SAM's in opening a stream to a channel in order to print (check this out in the SAM instruction book), but SAM is different in that stream #3 is permanently open to the expanded text printer driver, so this syntax will need amending a little more. There were also some rather odd things like the "COPY REM" thingy on some Kempston interfaces, and "POKE @" statements for the PLUS D. All of these are relatively easy to correct if you're alerted and look out for them.

More of a problem, however, are those wretched Basic commands PEEK and POKE. These are extremely powerful as they avoid all the carefully planned Basic, and go straight in for the kill. Usually, they are altering one of the system variables, and these are, of course, machine-specific. If you see PEEKs and POKEs scattered around the program and you are not sure what they're doing, type it in at

your peril. If you can, find someone who knows something about it to advise you if you're desperate to use a program like this. Hope this clears matters up for you.

Roy Burford of Norton, Stourbridge, West Midlands, writes about impossible objects. You remember: there was one by Alan Cox, following an earlier one by Grant Dixon. I thought this might stimulate a whole raft of "impossibilities": well it did. Here's a listing of Roy Burford's "Optillus".

```

1 REM Optical illusions. Source det
  ails lost but circa 1980. Derived
  by B.C.R. Burford 080192 for ZX Sp
  ectrum+ 128K.
50 CIRCLE 19,12.5: CIRCLE 47,26.5: C
  IRCLE 73,39.5
60 PLOT 15,16: DRAW 55,124: DRAW 55,
  27: DRAW 9,-4: DRAW -55,-125
70 PLOT 24,10: DRAW 47,107: DRAW 27,
  14: DRAW -46,-107
80 PLOT 71,117: DRAW 9,-4: DRAW 13,7
90 PLOT 43,29: DRAW 36,84
100 PLOT 69,42: DRAW 56,124
150 PLOT 114,28: DRAW 31,120: DRAW 11
  ,3: DRAW 83,-87: DRAW -3,-11: DRA
  W -113,-33: DRAW -9,8
160 PLOT 125,32: DRAW 30,118
170 PLOT 142,136: DRAW 11,3: DRAW 83,
  -86
180 PLOT 231,72: DRAW -3,-11: DRAW -1
  4,-33
190 PLOT 139,48: DRAW 21,83: PLOT 158
  ,120: DRAW 60,-61: PLOT 209,67: D
  RAW -80,-23
200 PRINT #0: AT 0,0: "Optical illusion
  s/impossible" objects. Press an
  y key to exit:"
210 PAUSE 0
220 STOP

```

Incidentally, Roy also mentions that he finds the repeated "block delete" program mentioned on p9 of the same issue of FORMAT absolutely excellent, and asks if anyone has a renumber program along the same lines. A temporary solution, Roy is either to use the Discovery disc drive (which has a renumber routine in the ROM), or to buy a copy of "Beta Basic" from Andy Wright, for this also has a renumber routine. Meanwhile, can anyone help?

Roy also included a number of interesting bits and pieces on his cassette tape, and I was going to investigate these further last night when I got home, when some last minute post awaiting me on the mat intervened. In particular, a letter from Bert Seymour of Scarborough, North Yorkshire, contained a Spectrum+3 disc (nice to hear from a +3 owner) on which were a couple of programs. The first one is - yes, you've guessed it - an impossible object. If Roy's look rather daunting to type in, try this one first: three lines of Basic shouldn't tax you too much.

```

10 CLEAR : BORDER 1: PAPER 1: INK 7:
  BRIGHT 1: CLS
20 PLOT 80,167: DRAW 80,0: DRAW 0,-1
  43: DRAW -16,-16: DRAW -16,0: DRA
  W 0,143: DRAW 16,0: DRAW 0,-143
30 PLOT 80,167: DRAW 0,-159: DRAW 16
  ,0: DRAW 0,143: DRAW 16,0: DRAW 0
  ,-127: DRAW -16,-16

```

Oh, and Bert specifically mentions that this "object" works on SAM, too.

There's a sting in the tail of Bert's letter in which he mentions that "my remarks about the confusion between lower case L and figure 1 were very timely, especially as there was a particularly horrid example of it in Alan Cox's "impossible object" program in pages 12 and 13 in my own column in the same issue!" Er... yes. Eats humble pie. The problem is that of the choice between typing in the program (which takes more time than I have, and introduces all sorts of errors), or loading it in from a disc, when I tend to miss problems of this sort. Alan Cox also writes a very contrite note with apologies if anyone's upset (I'm never upset, Alan) and a little note that he was.. "amused by my comments on the cavalier attitude of the PCW compositors to contributions that were published in the magazine - clearly [I] suffered from their activities. The amusing thing is that, as published in FORMAT, the correction of Mr Doughty's program does not work either, as someone has altered my line 40 FOR N=1 TO LEN LS to FOR N=..."

More humble pie - I put the column together on disc and post it to Bob, who cuts it to fit the space. So it's my typing. Only goes to show... Finally, he mentions that his "impossible" program has appeared twice! Such fame! This has arisen because of the general difficulties under which Short Spot is rushed to you, month by month. This last time, I had a machine breakdown which occurred just before press date (they always do), and in my haste have clearly picked on the wrong file - understandable when you have several "impossible" files sent. If there's someone out there who sent in an "impossible" around December, and has not heard of it, do please let me know.

It couldn't have been the "impossible" that David Finch of Haxby, York, sent, for that's only recently arrived. It's not too different from Bert's: just got more prongs. Intended for SAM, it won't take too much modifying for the Spectrum. And it's called "bars". Moral in that? Maybe...

```

1 CLS #
5 REM How many bars are there?
6 REM By D.Finch
10 FOR b=1 TO 2
20 IF b=1 THEN PLOT 190,0
30 IF b=2 THEN PLOT 100,15
40 FOR a=1 TO (13*(b+2))
50 READ x,y
60 DRAW x,y
70 NEXT a
80 NEXT b
90 DATA 15,15,0,155,-15,0,0,-170,-1
  50,0,0,170
100 DATA 15,0,0,-155,30,0,0,155
110 DATA -15,0,0,-140,15,0,-15,0,-15
  ,-15
120 DATA 15,15,15,0,-15,0,0,140,-15,
  0,0,-155,30,0,0,155
130 DATA 15,0,0,-155,30,0,0,155: REM
  Copy line 100
140 DATA -15,0,0,-140,15,0,-15,0,-15
  ,-15: REM Copy line 110

```

Back to Bert's +3 disc. This also contains a rather nice little clock program - again, I seem to have started something off by mentioning

clocks recently. Bert says he put this together from a variety of sources for his grandchild. It's not a wonderful timekeeper, (that's because it uses the "frames" system variable), but it's not too bad. Here it is, in pretty colours.

```

10 DIM s(60): DIM c(60)
20 BORDER 0: PAPER 0: BRIGHT 1: INK
  7: CLS
50 GOSUB 370: LET z$="00": CLS
80 INPUT "What hour is it? ";h
90 INPUT "How many minutes past? ";m
100 LET s=0: POKE 23672,0: POKE 23673
  ,0
110 IF h=12 THEN LET h=0
120 LET xc=124: LET yc=92: LET r=58:
  LET rh=r*2/3: LET rm=r*5/6: LET r
  s=r/2
130 CIRCLE xc,yc,r: INK 1: FOR i=0 TO
  359 STEP 30
160 PLOT (r+1)*s(i/6+1)+xc,(r+1)*c(i/
  6+1)+yc
170 NEXT i: INK 4: PRINT AT 10,7:"9":
  AT 10,23:"3": AT 2,14:"12": AT 18,1
  5:"6"
180 PRINT AT 3,10:"11": AT 3,19:"1": AT
  6,7:"10": AT 6,22:"2": AT 14,8:"8"
  : AT 14,22:"4": AT 17,11:"7": AT 17,
  19:"5"
190 PRINT AT 0,8:"FORMAT'S CLOCK.": O
  VER 1: GOSUB 500: GOSUB 470: GOSU
  B 440
220 LET tm=INT ((PEEK 23672+256*PEEK
  23673)/49)
230 IF s=i+tm THEN LET os=s: LET s=s+
  1: GOTO 250
240 GOTO 220
250 IF s=60 THEN LET s=0: POKE 23672,
  0: POKE 23673,0: LET om=s: LET m=
  m+1: GOTO 290
260 PLOT xc,yc: DRAW rs+s*(os+1),rs+c(
  os+1)
270 GOSUB 440: GOTO 220
290 IF m=60 THEN LET m=0: LET oh=h: L
  ET h=h+1: GOTO 330
300 PLOT xc,yc: DRAW rms+(om+1),rm+c(
  om+1)
310 GOSUB 470: GOTO 260
330 IF h=12 THEN LET h=0
340 PLOT xc,yc: DRAW rh*s*(oh+5+1),rhc
  c(oh+5+1)
350 GOSUB 500: GOTO 300
370 PRINT AT 14,0
380 FOR i=6 TO 360 STEP 6
390 PRINT ". ";
400 LET b1(i/6)=SIN ((i-6)*PI/180)

```

# PBT ELECTRONICS

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```
410 LET c(1/6)=COS ((1-6)*PI/180)
420 NEXT i: RETURN
    440 PLOT xc,yc: DRAW rns(s+1),r
      s*(s+1)
450 BEEP .007,0: LET s$=STR$ (s): PRI
NT OVER 0;AT 18,27; INK 4;"": 1
NK 6;z$( TO 2-LEN (s$)):s$
460 RETURN
470 PLOT xc,yc: DRAW rm*s(m+1),rm*c(m
+1)
480 LET m$=STR$ (m): PRINT OVER 0;AT
18,24; INK 2;"": INK 5;z$( TO 2
-LEN (m$)):m$
490 RETURN
500 PLOT xc,yc: DRAW rhes(h*5+1),rhac
(h*5+1)
510 LET ph=h: IF ph=0 THEN LET ph=12
520 LET h$=STR$ (ph): PRINT OVER 0:
INK 3;AT 18,22;" "( TO 2-LEN (h$
)):h$
530 RETURN
```

As you see, it even has the heading  
"Format's Clock" (in bilious green on  
the monitor on my +2). Lovely.

Anyone interested in fractals?  
Here's a fractal program which I also  
found lurking on Roy's cassette. It's  
nice to be able to pinch programs from  
the Commodore format. Isn't it...

```
1 REM Commodore Format. 7. April 19
91. p72. Techy Tips. Paul Lyons.
Freaky Fractals.
2 REM Revised to ZX Spectrum: 128K
by B.C.R.Burford 250391.
3 REM Further examples 11 Aug.1991
p45
5 BORDER 1: PAPER 0: INK 4: CLS
7 PRINT #0;AT 1,3; INK 2:"Press any
key to stop..."
8 PRINT AT 0,13; INK 7;"Fern?"
10 DIM a(2): DIM b(2): DIM c(2): DIM
d(2): DIM e(2): DIM f(2): DIM pi
2)
20 DATA 2
30 DATA .82,.28,-.21,.86,-1.88,-.11,
.79
40 DATA .09,.52,-.46,-.38,.76,8.1,.2
1
70 READ m
80 LET pt=0
90 FOR j=1 TO m
100 READ a(j),b(j),c(j),d(j),e(j),f(j)
),pk
110 LET pt=pt+pk
120 LET p(j)=pt
130 NEXT j
```

```
150 LET xscale=15
160 LET yscale=12
170 LET xoffset=130
180 LET yoffset=30
190 LET x=0
200 LET y=0
210 LET n=0
220 LET pk=RND
230 IF pk<=p(1) THEN LET k=1: GOTO 24
#
232 LET k=2
240 LET ax=a(k)*x+b(k)*y+e(k)
250 LET ay=c(k)*x+d(k)*y+f(k)
260 LET x=ax
270 LET y=ay
280 IF n>10 THEN LET xx=x*xscale+xoff
set: LET yy=y*yscale+yoffset: GOS
UB 600
290 LET a$=INKEY$: IF a$<>" THEN GOT
O 310
300 LET n=n+1: GOTO 220
310 LET a$=INKEY$: IF a$="" THEN GOTO
310
320 BORDER 7: PAPER 7: INK 0
330 STOP
600 REM Plot a point on the screen
610 PLOT xx,175-yy
640 RETURN
```

Martyn Bader of Wallsend, Tyne and  
Wear, has sent me a disc. A Tasword +2  
file on a PLUS D. Trouble is, it's a  
code file, and starts at address zero.  
Tasword +2 uses opentype files - well;  
the original does, as does the  
conversion for which "FORMAT" supplies  
a patch. There was a version around by  
a guy called Ronnie Simpson which used  
code files. So I dragged this out and  
typed in a few letters. A save to disc  
showed that this file started at  
address 49152. The code file wouldn't  
load from drive 2 (a 3.5" drive),  
because the program's been fudged to  
ignore drive 2, so I copied it to  
drive 1 (a 5.25" job) and tried to  
load it. No way: it just corrupts the  
program. And if, in desperation, you  
try it in the "FORMAT" version, it  
does the same. If you try and save the  
file and feed it back - nothing!  
Anyone any good ideas? And what  
program are you using, Martyn?  
Unfortunately, Martyn asks if a +2  
file on a PLUS D disc is acceptable.  
Answer - in every other case except  
yours, yes! Oh, Martyn, what gremlins  
have you got here?

Fortunately, Martyn has also included a print-out of his text. He mentions that many Basic programmers will be aware of this quirk of 128k machines, but some won't. On the Speccie+2, there are quite a lot of useful hidden ways to move the cursor around a program. Martyn; I've checked it on a +3 and it works there, too, so I guess it'll work on a 128 and a +2A as well.

Press extended mode and:-

N to move to the first line of the program  
 T to move to the last line  
 E to delete word left  
 W to delete word right  
 K to delete to start of the line  
 J to delete to the end of the line  
 P to scroll up 10 lines  
 I to move word left  
 M to go to the end of the line.

In addition, Graphics key and Y goes to the start of the line, and Z toggles between "screen" and "normal" mode.

Nice one! Many thanks, Martyn.

Back to David Finch and the SAM. As well as the impossible object, David has included some little snippets that throw boxes around the screen. You know; rotating wireframed objects and all that. Try this one as typical...

```

1 LET x=130,y=85
10 FOR x=0 TO 355 STEP 15
20 LET rad=(x/180)*PI
30 LET c=(SIN rad)*25
40 LET a=(COS rad)*25
45 CLS
50 PLOT 0,0: DRAW a,c
60 LET rad=((90-x)/180)*PI
70 LET d=(SIN rad)*50
80 LET b=(COS rad)*50
90 PLOT 0,0: DRAW -b,d: DRAW a,c: D
  RAW 0,10: DRAW 0,-10: DRAW b,-d
91 PLOT 0,0: DRAW 0,10: DRAW a,c: D
  RAW 0,-10: DRAW 0,10: DRAW -b,d
92 PLOT 0,0: DRAW 0,10: DRAW -b,d:
  DRAW 0,-10: DRAW 0,10: DRAW a,c
100 NEXT x
110 RUN
  
```

Now, a note from A. Stuart Hughes of Holywell, Clwyd. He writes "that in the July '91 "Short Spot", a problem of software incompatibility with the PLUS D was discussed. You may remember that I was trying to persuade the "Lords of Midnight" adventure/war game to work with the PLUS D. Unfortunately, Steve Warr's solution ("Short Spot" Sept '91) didn't work for me, either". "Well", (he writes), "I have solved the problem completely (at least as far as LOM is concerned. I have bought myself a SAM Coupe and the game works perfectly using the emulation software supplied with the machine. I then wanted to load data arrays into SAM, and tried to load these from PLUS D discs without success. Charles Gill at SAMCo told me that this could be done only by placing the data into a code file, saving to tape, loading the code file back into SAM and inserting the data back into an array. This is a program which will do just that for a string array.

```

1 REM chr$ to code file conversion.
3 REM CLEAR 46999; LOAD @ array;
5 REM set FOR/NEXT loops & string n
  ame.
6 REM ...Start by GOTO 1
20 LET address=47000
30 FOR n=1 TO 175
40 FOR m=1 TO 28
50 POKE address,CODE $S(n,m)
60 LET address=address+1
70 NEXT m
80 PRINT AT 0,0;n
90 NEXT n
95 STOP
101 REM code to chr$ file conversion.
103 REM CLEAR 46999; LOAD code file;
105 REM set FOR/NEXT loops & string n
  ame; DIM array.
107 REM ...Start by GOTO 100.
120 LET address=47000
130 DIM $S(175,28)
140 FOR n=1 TO 175
150 FOR m=1 TO 28
160 LET $S(n,m)=CHR$ PEEK address
170 LET address=address+1
180 NEXT m
190 PRINT AT 0,0;n
200 NEXT n
  
```

The REM statements give a brief set

of instructions. Lines 1 to 95 place the ASCII code of each data element into an address above RAMTOP. The FOR/NEXT loop variables will need to be chosen to suit the size of the array being transferred. In Stuart's example here, the string array (\$S) has 175 strings each of which contains 28 characters. Lines 100 to 200 read the data above RAMTOP and convert it back into a string array. The address chosen for RAMTOP on Stuart's 48K Spectrum will allow for just over 18k of data to be transferred. Initially, he thought it would be possible to transfer data both ways, but unfortunately, the Spectrum will not load the code files saved to tape by SAM. Stuart asks if there is anyone out there who would care to write a program to transfer numeric arrays. And I ask if there is any neater way - apart from the RS232, which also has given some problems. Any good ideas out there?

Finally, for those noisy devils amongst us, here's a lovely little program to play a little jingle (well, the computer thinks it's a tune). On a Spectrum, it'll vie with the best of Felonius Monk: on SAM it's simply frenetic. Try it!

```

5 REM program based on one by Michs
  e1 Downing PCN 23 June 1984
10 FOR I=-40 TO 30 STEP 0.2
20 BEEP 0.05,INT (RND*1)
30 NEXT I
40 GOTO 10
  
```

That brings me to the end of this month's "Short Spot". Thank you for all the contributions. Clangers are entirely due to me. Please keep them coming (the contributions, not the clangers) to: John Wase, Green Leys Cottage, Bishampton, Pershore, Worcs. WR10 2LK. Please remember that it's so much easier if you include a disc and a printed description. If there's a piece of code, an Assembler listing and a Basic code paker with a decimal list is necessary to help those friends in our midst who don't have an assembler. Bless you all.



## WRITING FOR FORMAT

FORMAT needs your contributions. Articles on any computer related subject are urgently needed to fill these pages.

Article length could be from half a page up, but two or three pages is about right for most subjects. You could target beginners or experts, there is room for all in FORMAT.

Articles should be sent as ASCII word processor files on disc (in other words do not use printer control codes in the text). We can cope with 3 1/2" or 5 1/4" discs from DISCIPLE, PLUS D, SAM or IBM PC. Don't worry too much about spelling, we will do our best to correct things and lay out the article for you. Include a printed copy so we can read them straight away. Pack any pictures flat or include SCREENS files for us to print out here.

Programs should be included on the disc so we can load and test them before printing. Avoid using imbedded colour control codes and UDG characters - they make listings harder to produce and to read, use INK, PAPER and CHR\$ to do the same job. It is also better to use upper case characters for variable names and NEVER use lower case L as a variable it looks too much like the number 1.

Come on, give it a go, others will also like the subject you are interested in. Many readers have asked for subjects like:-

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# THOUGHT SPOT.

By:- Jeremy Cook.

Thank you, thank you. No more applause, please.

What do you mean you weren't clapping? Not at all? Not even with one hand? Oh, well. I suppose I don't deserve it anyway, having been somewhat idle recently. That is changing however, and those of you waiting for replies/returns may already have received them by the time you read this.

The regulars should recall that there is no prize puzzle this month, but don't forget that you still have time to get your solutions to last month's prize puzzle in. What we do have this month is the lowdown on the domino problem.

While we are on the subject of prize puzzles, I often seem to neglect to say that I am interested in anything you come up with. Also, if you are having problems, try a smaller and simpler subset of the problem. For example, in the Rich Pickings puzzle it is probably easier to work with far fewer sacks. Here we go...

## CALENDICE

Calendice are a pair of dice with one digit on each face. With these dice you can display all the days of the month (ie. numbers from 1 to 31). Your task is to say what digits each die should have on it's faces. Easy? But of course! (This is one of my favourites from "A Second Mensa Puzzle Book")

## THERE MUST BE A WORD FOR IT!

Can you give the words that fit these meanings?

1. The class of mammals that carry their young in a pouch.

2. Goods thrown overboard to lighten a ship.

3. An exaggerated statement not meant to be taken literally.

4. The rearing of silkworms for producing raw silk.

5. The study of coins.

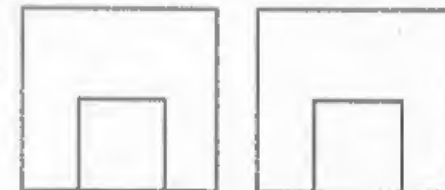
6. A device intended to aid memory.

## REBUS

Here's a quick rebus:- PADDLE DIESEL

## VIEW TO A ?

The diagram shows the plan view and front view of a building. The question is: what would this building look like if it were built?



## PRIZE PUZZLE RESULT : DOMINOES

For this puzzle, which appeared in FORMAT 4/12, I have received only six entries. All the programs give the unique solution to the given arrangement. Unfortunately, in D.A.Lorner's program the placing of the dominoes is largely predetermined; nicely drawn set of dominoes though.

Alan Cox used the method I suggested, and he says it is the longest program he's ever cobbled together (it is a bit inelegant, and it is long because it does things by



cases), but it does run quite fast: its the second fastest in overall time. I also think it gives a poor display of its working and solution.

Dave Wood also used the method I suggested. It searches for and places all the dominoes that appear once, and then it makes a choice between positions of dominoes that appear twice or more. If a dead end is reached then the program backtracks to make the other choice. The placed dominoes are clearly shown by the box round them. The program is rather slow, though, which I think is due to the method.

Bill Lane's program is also long, and very complicated. It is, however very clever. First it searches for dominoes that appear only once, and when all those are found it looks at the lines that would be drawn between the dominoes. A square surrounded by three lines determines the position of a domino. If that fails, then the program seems to check that the space left by placing a domino has an even number of squares. This is the slowest program and the term "spaghetti programming" springs to mind when I look at the listing, but I still like it, mainly because of its unique approach.

Ettrick Thomson's program was his usual structured and thoughtful standard (hmm... I'm sure I've had this feeling of *deja vu* before). He uses recursion (see later) to search for and place the dominoes in a given order. This order is worked out by the number of times they appear. Those appearing once come first and those appearing most come last. The ordering takes a bit of time, but overall this makes it faster (not only on my arrangement, but in general also).

But good though these programs are, I liked Ian Brook's solution best. Ian's program also works recursively, but in a different way to Ettrick's. The recursive routine is "place domino" which starts at the given position (r,c) and steps along the rows until it finds an unused square

(no 'x'). Then it tries to place the across domino at that square. If that is not possible (right hand edge or domino already used) then the down domino is tried. If that fails then the routine is exited, and the program backtracks. Otherwise the domino is placed, and the routine is called again using the current position.

The original program was written for SAM, so I have converted it for Spectrum users as best as I can. Also I have removed the part that found and placed all the dominoes that appear only once to make the program shorter (you can add this yourself). So now the program is slower than Ettrick's whereas before it was generally faster. My apologies to Ian for mucking about with his program.

Before you read the program here is a brief explanation of the variables: a\$ is a copy of the area to restore b\$ with; f\$ holds a "." to denote placed dominoes; d is the direction being checked; dl is an index for f\$ calculated from the numbers on the domino in such a way that it doesn't matter which way round it is; v holds d and dl for backtracking purposes; n is the index for v, r and c, needed for doing the recursion "by hand".

```

10 LET b$="46566033x14554150x201160
   01x42262336x40554523x16232516x43
   403120xxxxxxxx"
20 LET a$=b$
30 DIM f$(49): DIM v(2,29)
40 DIM r(29): DIM c(29)
50 FOR r=0 TO 6: FOR c=1 TO 8
60 PRINT AT 2+r,2+c;b$(r+9+c)
70 NEXT c: NEXT r
80 LET n=1: LET r(n)=0: LET c(n)=1
90 GOSUB 500
100 PRINT AT 17,0:"finished"
110 STOP
120
500 REM place domino
510 IF b$(r(n)+9+c(n))<>"x" THEN GOT
   0 580
520 LET c(n)=c(n)+1
530 IF c(n)>8 THEN LET c(n)=1: LET r
   (n)=r(n)+1
540 IF r(n)<? THEN GOTO 510
550 PRINT AT 17,0:"solution"
560 PAUSE 0: PRINT AT 17,0.,

```

```

570 GOTO 770
580 LET p=r(n)+9+c(n)
590 FOR d=1 TO 9 STEP 2
600 IF b$(p+d)="x" THEN GOTO 760
610 LET b=b$(p)+b$(p+d)
620 LET dl=7+VAL b$(p+d)+VAL b$(p+
   d+NOT b)+1
630 IF f$(dl)="" THEN GOTO 760
640 LET b$(p)="x":b$(p+d)="x"
650 PRINT AT 2+r(n)+(d+9),2+c(n)+(d-
   1):"."
660 LET f$(dl)=""
670 LET r(n+1)=r(n): LET c(n+1)=c(n)
680 LET v(1,n)=d: LET v(2,n)=dl
690 LET n=n+1
700 GOSUB 500
710 LET n=n-1: LET p=r(n)+9+c(n)
720 LET d=v(1,n): LET dl=v(2,n)
730 PRINT AT 2+r(n)+(d+9),2+c(n)+(d-
   1):"."
740 LET f$(dl)=""
750 LET b$(p)=a$(p),b$(p+d)=a$(p+d)
760 NEXT d
770 RETURN

```

That is all we have time for this month. Next month should have another prize puzzle for you, and I may give the hanoi solution as well, since I have now been through all twenty of the entries. The word recursion seems to appear in every other sentence in this column, and so I would like to attempt to explain that at some point as well.

Don't forget to send in your prize puzzle entries - there is still time. However, I usually accept entries whenever they arrive (but don't count on it!)

Just a final thought: everybody has heard of the "Seven Wonders of the (ancient) World", but how many can you actually name? B.. G..B..B..

That's all folks.

-----oOo-----

SOLUTIONS TO FEBRUARY'S PUZZLES

Errors in sentence:- is should be are, errors should be errors, and three is wrong because there are only two errors!

Crossword:



Board-dom.

204 squares (1 8x8, 4 7x7, 9 6x6, ...49 2x2, 64 1x1)

1296 rectangles (work it out for yourself)

70 squares are covered by the disc (or just 32 1x1 squares)

Rebus/Dingbat:

welcome back.  
point blank.  
inclined to agree.  
forgive and forget.

-----ooOoo-----

Editor's note:

Jeremy has contacted me this month to say that he is receiving very few entries for the regular Prize Puzzle. From your comments on renewal notices I know that many of you enjoy Thought Spot each month so why so few entries? What is the matter? Are the problems too difficult? Would you prefer to see the Prize Puzzle dropped and more space devoted to small brain teasers? It is up to you, the reader, to tell us how you want things to run. I, and Jeremy, look forward to your comments.



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# MACHINE CODE WITHOUT THE TEARS

Part 7.

By:- Carol Brooksbank.

This month's routine for printing the owl to the printer is an extension of last month's program. Delete the END and LENGTH lines from last month's source code, add these lines to last month's program to make one large one, and assemble it to produce one block of object code.

If you look back at last month's fig. 2, you can see that the binary bytes we used for the data bytes in the listing were the horizontal bytes in each "character" block - bit 7 on the left, bit 0 on the right - the usual arrangement.

The difficulty with graphics printing is that, in graphics mode, a printer requires the vertical bytes - bit 7 at the top, bit 0 at the bottom. You can see from the diagram that, in any block of 8 bytes, the horizontal bits 7 make up one vertical byte, the bits 6 another, and so on.

It would be a terrible waste of time to have to type out all the data bytes again, using the vertical bytes, but fortunately we don't have to. There are some handy instructions for moving the bits around which will allow us to convert them.

Today's Fig. 1 shows some of them. Rotate Left, Rotate Right with Carry and Rotate Right Decimal. The opposite commands, RR, RLC and RLD move the bits in the opposite direction.

The one which helps us is RL. If we load the address of the first byte of a block into HL, RL (RL) will put the byte's bit 7 into carry, and move all the other bits along so that the former bit 6 is now at bit 7, ready for when we want that. If we now use RL D, the bit which was in carry, our former bit 7, will become bit 0 of D. INC HL, followed by RC (HL) will get

us bit 7 of the next byte and RL D again will move our last bit up to bit 1 of D and put the new one at bit 0. Repeat this a total of 8 times, and we have a byte in D made up of all the horizontal bits 7 in the right order, which is what we wanted, so we print it. As a bonus, all the bits 6 of the horizontal bytes have moved up to become bits 7, so we can do the whole thing again for the next vertical byte.

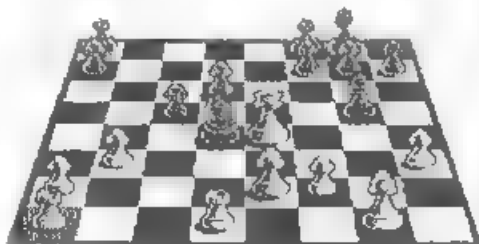
Obviously, the pattern of that portion of the owl gets more and more corrupted as this process goes on, so we don't want to work on our original data bytes. We have an 8-byte workspace called SWITCH, and each character block is copied there as we need it, and we can convert the workspace bytes where the corruption will not matter.

```
SWITCH DEFS 8
GOTTO DEFW 0
LINEFEED DEFB 27,51,24
MODEBYTES DEFB 27,75,24,0
```

In addition to our workspace, we have a program variable, GOTTO. It holds the address we have got to in the list of data bytes. At LINEFEED are three data bytes which set the printer linefeed to 24/216". At MODEBYTES are the bytes which put the printer into graphics mode "K", and set up the number of bytes in a line. We are using 24 bytes per line - 3 "character squares" of 8 bytes per square in a line.

```
PRSTART LD A,3
CALL 5633 (Spectrum)

or CALL 274 (Sam)
LD B,3
LD HL,LINEFEED
LD A,(HL)
FEEDLOOP RST 16
```



# MOVING THE BITS ABOUT



RL MOVES ALL BITS 1 STEP TO THE LEFT. CARRY FLAG GOES TO BIT 0, BIT 7 TO CARRY FLAG

THE OPPOSITE COMMAND, RR, MOVES THE BITS 1 STEP TO THE RIGHT. BIT 0 GOES TO CARRY AND CARRY TO BIT 7.



RRC MOVES ALL BITS 1 STEP TO THE RIGHT. BIT 0 GOES TO BIT 7 AND TO CARRY FLAG

THE OPPOSITE COMMAND, RLC, MOVES THE BITS 1 STEP TO THE LEFT, WITH BIT 7 GOING TO CARRY AND TO BIT 0.



THE OPPOSITE COMMAND, RLD, REVERSES THE DIRECTION OF THE ARROWS, BUT THE SAME NIBBLES ARE INVOLVED.

FIG. 1.

```
INC HL
DJNZ FEEDLOOP
```

We set the printing to the printer, and then the three linefeed data bytes are sent to the printer.

```
LD HL,CWL
LD (GOTTO),HL
```

The address of the owl bytes is stored in the variable

```
LINELOOP LD B,3
          PUSH BC
          LD B,4
          LD HL,MODEBYTES
SETLOOP  LD A,(HL)
          RST 16
          INC HL
          DJNZ SETLOOP
```

This is the start of the outer loop which draws three lines of squares. Each line begins by sending the graphics mode and bytes-in-this-line information to the printer. SETLOOP is a loop within a loop - a nested loop. We shall be using several nested loops in this program, all counted by B and DJNZ, so PUSH BC is used to preserve the counter for one loop while we use B for another.

```
CHARLOOP LD B,3
          PUSH BC
          LD HL,(GOTTO)
          LD DE,SWITCH
          LD BC,8
          LDIR
          LD (GOTTO),HL
```

Here is the start of an inner loop, the one which counts the character squares in a line. Again BC must be saved because there are more nested loops to come. The address we have not to in the data bytes is fetched, and the B bytes for a character square copied to the workspace by LDIR. LDIR leaves HL holding the address of the first byte we did not transfer, and this is where we need to start next time, so it is saved in GOTTO

```
LOOP1 LD B,8
       PUSH BC
       LD HL,SWITCH
```

```
XOR A
LD D,A
LD B,8
RL (HL)
RL D
INC HL
DJNZ LOOP2
LD A,D
RST 16
POP BC
DJNZ LOOP1
```

LOOP2

A double loop this time. The outer one counts the bytes in a square, the inner the bits in a byte. This is the part of the program which converts and prints the bytes, as described above.

You see a new instruction, XOR A. This is one of three instructions which compare the bits in A with either the bits of a number or the bits in a register, and alter A's bits in accordance with a pattern. Fig. 2 shows the instructions and what they do. In each diagram, the top number is the one in A, the middle one the operand, and the bottom one the one left in A after the operation. The operations are not arithmetical, so you cannot see from the decimal forms what is happening

XOR A means comparing the byte in A with itself. XOR changes to 1 any bit which was at 1 in the original number or the operand, but not in both. All the other bits in A are reset to 0. If you compare a number with itself, there are, of course, no bits set in one which were not set in the other, so A is left holding 0 - all the bits reset. As a by-product, all these logical operations reset the carry flag, so XOR A, LD B,A is a quick way of leaving A,D and the carry flag all holding 0.

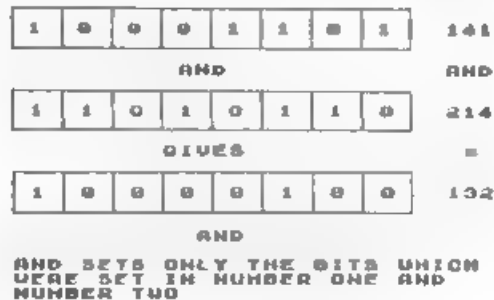
I am sure that you already keep your FORMATS safe in binders, but please don't lose these issues with this series, because you will need to look back to diagrams like this from time to time to check on exactly what the instructions do

```
POP BC
DJNZ CHARLOOP
```

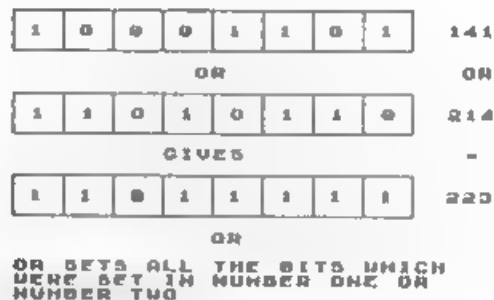


# BINARY LOGIC

## AND



## OR



## XOR

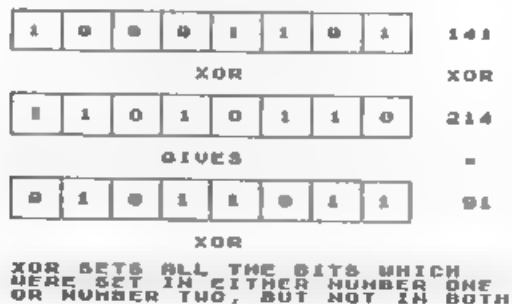


FIG 2.

This point is reached at the end of each character. The program will loop back if we have any more characters to do in this line.

```

LD A,13
RST 16
LFEED1 LD A,10
LFEED2 RST 16
      POP BC
      DJNZ LINELOOP
      RET
END
LENGTH EQU 5
      EQU END-OWL
    
```

If a line is finished, a newline and linefeed are sent to the printer, before looping back to do another line. If all the lines are complete, the program exits to BASIC.

If your printer is set to do a linefeed automatically with every carriage return, your owl's head, body and legs will be separated in the printout by a blank line. In that case, omit the lines labelled LFEED1 and LFEED2.

When you have assembled the whole program, load your object code to 32000 (after CLEAR 31999).

Before the machine code can be called, you need to turn off token expansion, or the printer will interpret the bytes as BASIC commands as it does with LIST. Enter the appropriate command for your machine as a direct command from BASIC.

Spectrum/PlusD users enter:-

```
POKE #6,1
```

Spectrum/Interface 1 users enter:

```
ceFORMAT "b":baud rate, OPEN #3:"b"
```

Spectrum+3 users enter:

```
FORMAT LPRINT "0"
```

SAM users enter:-

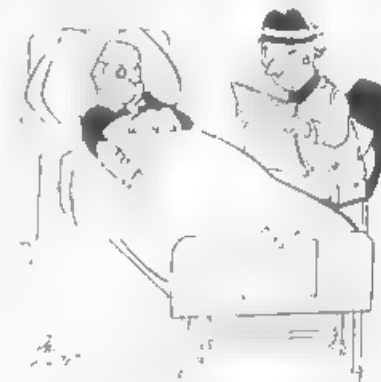
```
OPEN #3,"b"
```

LET A=USR 32083 prints the owl to

screen, LET A=USR 32131 prints him to printer.

You should now be able to see how to print a sprite of any size to screen or printer. You divide the sprite up into character square size blocks and create the data lines by listing the horizontal lines for each block in order. In the screen printing routine, CHR\$ 13 marks the end of a line but you must alter the number loaded to B, in the line above PRLOOP to the total number of bytes being printed. Use consecutive numbers starting at 32 for your pseudo-ASCII codes.

In the printer routine you will have to alter the number of times the line and character loops repeat to suit the size of your sprite. Changes may alter the addresses from which the routines are called, but your assembler symbol table will give you the addresses of START and PRSTART.



'Here it is - "Wife mistakes husband for prowler!"'



By:- Nev Young.

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It does seem like a long time since I wrote the last help page. I must get the post office to lose them more often so I can get more rest.

First off with a letter from K.D.Barrett of Crossycellio (I'll never get that past the spell checker) who wants to know if he goes "up market" from his Spectrum +2A and PLUS D to a SAM will he be able to use his disc drive and discs. Yes you can but its a reserved yes. You can connect the disc drive to the SAM via an external disc interface, there's no problem there. You can read the discs as they use the same disc layout. But if you want to run the programs you will have to either convert them to run on SAM or use a Spectrum emulator such as Specmaker. Whether you convert or emulate depends on what kind of programs you are going to transfer. Most "serious" software is best converted but games are usually quicker and easier to use an emulator.

Next Harry Connell asks if the fonts in the FORMAT Font Library can be used with PGCs DTP package to give fancy fonts on his printer. Sorry, no they can't. The Font Library contains screen fonts in a 8x8 matrix, for the DTP you need a high resolution font. You should, with a lot of patience, be able to get the fonts into the DTP by using it's font editor but you will have to enter each character one pixel at a time. The end result should make the effort worth while.

Malcolm Perry, a regular writer, asks the question about when the "are you sure?" message is used during disc formatting on the SAM. I can only say when it should not when it does. If you are using SAMDOS then you get the message every time. If you are using MasterDos or MasterBasic (I assume every body used MasterBasic with

MasterDOS) then you only get the message if the first sector on track 0 can be read. That is, the disc has already been formatted (even in IBM format). If you get the message at any other time then you have managed to get SAM all confused (which I doubt in this case). There is no DVAR that can be used to turn the message on and off, at least, none that I know of.

E.Russell of Parth has sent in one of those really puzzling problems. The puzzle is that he tells me what to do and what the result is. So I do it and get a different result! He asks if these bugs exists in MasterDOS. If when you try to redefine a key the machine reverts. There is a problem recognising the second drive and the version number is 40.

Well in reverse order the version number of MasterDOS 2.0 is 40. As it tells you in the manual you divide by 10 and subtract 2. The 2 is to avoid the same version number as Sandos. You can't find drive 2 then check that DVAR 2 is set to 208. If it is 0 then you are telling SAM that there is no second drive.

As for defining keys they all appear to work. Try this silly program:-

```
10 DEF KEYCODE 200: PRINT "YOU ARE
  STUCK"
20 FOR N=0 TO 279
30 KEY N,200
40 NEXT N
```

However, unless you are using MasterBasic with MasterDOS (which every FORMAT reader should be by now) you can sometimes have a problem with DOS commands. DEF KEYCODE 200: DIR 1 may cause a crash but if you use the other version of the command and type it as DEF KEYCODE 200:"DIR 1" it should work. It is not really a bug,

the problem is that the keycode table and the DOS need to occupy the same page of memory.

This does illustrate a problem which I have with many letters I receive, without details of which ROM / DOS ect. you are using, it is often a long hard road to discover what your problem is - let alone solve it. For SAM users the instruction PRINT PEEK 15 gives the ROM version number, PRINT PEEK (DVAR 7) gives the DOS version and PRINT PEEK (XVAR 7) gives the version number of MasterBasic. Spectrum users need to quote which model of Spectrum, which disc interface and DOS version they are using and if the problem is in 128K or 48K mode

Now when is a PC not a PC? A few have asked this and I have to admit it can get confusing. In computing, PC stands for Personal Computer. So any computer that is used by one person is a PC. But way back in the dim and distant past a small computer company launched a Personal Computer called the XT and everybody wanted one. Unfortunately everybody isn't a computer person so instead of referring to the IBM XT they said IBM PC. The name stuck and as other companies copied the XT machine the IBM part was dropped so many non computer types spoke of their PC. Computer people who wanted to sell XT computers to the public also started to call these machines PC and so now it is "generally" accepted that when somebody talks about a PC they really mean an IBM XT or an IBM compatible machine.

It is, I'm afraid, another example of the decay of the English language (or if not decay then evolution, for it behoves us all to accept change). So now if a computer bore corners you at a party and starts to drone on about his new PC you can stop him with the question "Is that a clone of the IBM AT/XT or something completely different?" The AT is a later version of the IBM XT by the way

A disc full of 128K Spectrum

programs arrived from Sergio Di Lembo. Many show some really very interesting effects such as 16 colour screens with no attribute clash and graphics in the border. Although the language is enough to make a sailor blush at times. The main reason for sending them was, however, to show screen corruptions during music output. The reason is, I think, simple enough. Memory contention.

On all Spectrums since they were first introduced some of the memory has been shared between the Z80 chip and the ULA. Now it is not possible for both chips to get at the memory at the same time so if both the Z80 and the ULA want to access the same 16K block of memory at the same time the ULA will stop the Z80 for 1 memory cycle.

On a 48K machine the contention happens between addresses 16384 and 32768. On a 128K machine it will also happen, but when is more difficult to describe. The 128K machine has 8 16K pages of memory, two of them can hold screens, pages 5 and 7. Any of the 8 pages can be in the address range 49152 to 65535. Now if any page 4 to 7 is in use then you can get the same memory conflict as before. Once more the ULA will stop the Z80 for 1 clock cycle. Now if music is playing at the same time the machine will constantly be switching pages to get the next part of the tune and it is more that likely that the switching will not go as smoothly as you would like, especially if the machine is hot. This will cause slight screen corruptions. Sergio has gone to great lengths to use memory pages that are not contended to get round the problem

Henk van Leeuwen has sent in a program to convert TASWORD128 to let it work with Uni-Dos. I've touched it up a bit and it seems to work

10 REM convert tasword128 code  
20 REM for Uni.dos  
30 REM Jan 1992 S D Software  
40 REM By Henk van Leeuwen  
50 REM  
60 CLEAR 6500.

```
70 CLEAR #
80 INPUT "Insert TASWORD128 disc the
   n press enter "; LINE AS
90 OPEN #4:dl "TASCODE" RND
100 DATA 7337,55,7361,55,35921,26,359
    26,28
110 DATA 7337,0,7361,0,35921,152,3592
    6,154
120 LET OK=0
130 FOR N = 1 TO 4
140 READ P,C
150 POINT #4,P
160 LET OK = OK + (C=CODE INKEYS#4)
170 NEXT N
180 IF OK<>4 THEN PRINT "Already conv
   erted or          wrong version
   ": STOP
190 FOR N = 1 TO 4
200 READ P,C
210 POINT #4,P
215 PRINT #4,CHR$ C;
220 NEXT N
230 CLOSE #4
240 PRINT "converted"
250 STOP
260 SAVE OVER dl"TASWORD128" LINE 10
```

Finally an apology from me to all FORMAT readers who have requested help relating to specific programs or to particular pieces of hardware (printers etc). As I have very few commercial programs and a narrow range of hardware I am usually unable to provide solutions to these kind of problems. However, with this in mind I hope soon to publish a number of these "problems without solutions" in the hope that somebody out there can provide an answer.

Send your problems, giving as much detail as you can, to:

Neu Young,  
Format Help Page,  
70, Rainhill Road,  
Barnoldswick,  
Co.ine  
Lancashire  
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Q. OK, so what is CP/M 2.2?

A. CP/M 2.2 is a Disc Operating System, originally invented by Digital Research, that gives many different machines the ability to run the same programs. This means that a vast pool of software already exists for PRO-DOS.

Q. What sort of programs, and where do I get them?

A. Well, in the main, the available software is for serious uses. There are Wordprocessors, Spreadsheets, Databases, Programming Languages, Utilities and Assemblers available in the public domain, which means they are cheap! You get a taster of what is around by ordering the sample PD disc (over 700k of software to play with and it only costs an extra £1) when you order PRO-DOS. A contact for other PD discs will also be supplied.

Q. Fine, but what will PRO-DOS cost me?

A. PRO-DOS, with a 68 page manual, Boot and System utility discs, costs just £28 plus £2 p&p (UK). The PD sampler disc costs only £1 if purchased at the same time.

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## THE ZX SPECTRUM'S 10th BIRTHDAY PARTY

By:- Simon Goodwin.

This Spring the ZX Spectrum will celebrate its tenth birthday at ZX92, a party in Cambridge organized by Spectrum enthusiasts. ZX92 will be a meeting place for the friends of the Spectrum - users, programmers, publishers, editors, writers and artists - and will also attract interest from local and international press, TV and Radio. ZX92 is a positive event to promote an extraordinarily successful British invention.

The name and themes have been chosen by an independent group of enthusiasts who have been involved with the Spectrum since 1982. The Spectrum was known as the ZX82 when developed from Sinclair's earlier ZX80 and ZX81 micros: thus the name ZX92.

Last summer FORMAT SHORT SPOT compiler John Wase mentioned the coming anniversary in a letter to to myself; since then we have teamed up with columnist Mel Croucher, programmer Andy Wright and Sean Sanderson of the Spectrum Music Group, to organize ZX92 on Saturday 2nd May 1992. This is a non-commercial event, independent of any manufacturer, publisher or magazine. It will bring together famous names from the 80s and the new generation of Spectrum enthusiasts, to share their experience and look forward to the future.

An estimated seven million Spectrums have been sold around the world. Sinclair production in the first four years alone topped 4 million, including some 'stock' left when Amstrad took over, and 'improved' the range with the +2, +3 and +2A. The purchase of Sinclair's computer brands earned Amstrad £161,000,000 in 1987 alone. Many early Issue 1 Spectrums are still in use ten years on, and will probably carry on into the next

century, as long as vital spares like keyboard membranes remain available.

Mass produced compatibles have appeared, including the TS-2060, SAM, and Russia's Hobbit. The UK market is saturated, and sales are growing in Eastern Europe and the developing world. The Spectrum family has been manufactured in Scotland, Wales, England, Brazil, Portugal, Russia, Spain, India and Taiwan (at the last count). Spectrum Emulators exist for Archimedes, Amiga, QL, ST (via Qdos), Memotech, Einstein and reputedly even PC users!

The Spectrum has had a tremendous influence upon the lives of many people, providing a creative outlet as well as a hobby or job. Its success has brought us all a myriad of offshoots, add-ons and applications, and created a world-wide community of enthusiasts. ZX92 will celebrate that success, bringing together lots of people who have shared in it in the past decade, plus the sounds and images we know and love.

ZX92 events include a talk on the early days of the Spectrum development, a projected video display showing all types of Spectrum graphics, and an apt musical score, including Spectrum tunes, rhythms, speech, MIDI sequences and odd Automata B sides! Best of all ZX92 will be a chance for people to meet and talk.

Montages and pictorial displays will reflect the variety of applications for the Spectrum. We shall encourage eager users to bring custom systems, software and all sorts of Spectrum emulators, by arrangement, to demonstrate and share in the fun. We will feature a wide range of Spectrum spin-offs and emulators not forgetting

16K, 48K, Spectrum +, Spectrum 128K, +2, +3, +2A, SAM, microdrives, the ZX printer, and disk systems, homebrew machines and specialised set-ups. Everyone is welcome to chip in - for instance we are grateful that FORMAT Editor Bob Branchley has offered to wheel along his Portuguese Timex 2068, based on the US variant of the Spectrum, more recently sold in six figure quantities to the aspiring hackers of Poland!

We have some classic programs and peripherals and welcome ideas, more machines and monitors. Please let us know if you can arrive an hour early to set up and demonstrate an interesting machine, with a monitor and reliable software.

The venue is the Cambridge University Centre which is in Mill Lane in the centre of Cambridge, the Spectrum's birthplace, and close to the main Bus and Railway stations. It will run from 2pm to 7pm. Influential people from throughout the Spectrum scene have been invited, including Uncle Sir Clive, former Sinclair staff, and fine programmers, artists, writers, designers and publishers. Even the Piman is hoping to return from tax exile to celebrate the great day. Refreshments will be served, and there will be a ticket draw with prizes of Spectrum goodies, among other diversions.

A limited number of tickets are available, for true Spectrum enthusiasts. We want to encourage people who have made an unique contribution to the scene. The capacity of the venue is 200, so we must limit tickets to two per application, subject to availability. ZX92 will be an exclusive event not to be missed.

Tickets are available by post, from:-

ZX92,  
24, Wyche Avenue,  
Kings Heath,  
Birmingham  
B14 6LQ.

You MUST enclose a stamped, self-addressed envelope with your payment (UK cheque, PO, Eurocheque or Sterling draft) payable to ZX92, at £7.50 pounds per ticket. Please place your order as soon as possible, to avoid possible disappointment, and give some indication of your interests and involvement in the Spectrum scene since 1982.

### COMPETITION

FOUR very lucky FORMAT readers will win FREE tickets to ZX92! Just answer these three questions correctly and complete the tiebreaker in an original and truthful way:-

- (1) What is the microprocessor used in the Spectrum?
- (2) Who designed the Spectrum hardware?
- (3) Who adapted the Spectrum ROM from the ZX 81 version?

**TIEBREAKER:** complete the following sentence in ten words or less

ZX92 would be incomplete without me because ...

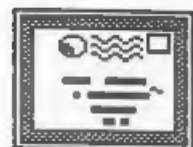
Competition entries will be judged by the organizers and should be sent to the address above by 1st April. Multiple entries will disqualify the sender. The organizers' majority decision is final. Every one else may enter, but if you're very keen to come it's probably best to order a ticket too. Orders will be refunded in full (using your SAE) if you win one of the prizes or we run out of tickets.



*'I think he wants to go out!'*



# YOUR LETTERS



Dear Editor,

I subscribed to FORMAT almost two years ago and it just seems to go from strength to strength. I am particularly enjoying Carol Brooksbank's machine code course but feel I need a tiny bit more help, (just a tiny bit, honest!) so if any of your readers live in or around Norwich and could spare a couple of hours I would be most grateful. I have purchased the machine code course from Kobrahsoft but did find it a little too simplistic!

Also, if anyone has some of the early books on programming, such as 'Spectrum Machine Language Programming For The Absolute Beginner' I would be very interested to hear from them. (you did request readers to offer some of these titles quite recently in your columns I believe.)

Yours sincerely, Peter Goulding.

We have received some books and software as a result of my appeal, including a large box all the way from Australia. The intention is to continue accepting donations and, when we have enough, offer them for sale to members (either in FORMAT or at shows). The proceeds will go to charity. If anyone has any books, software, or even hardware they want to get rid of then send it in by post or drop it in to the FORMAT stand at a show (ring first to make sure I'm going). Ed.

Dear Editor,

In January of this year, in response to an urgent plea over the phone, you dispatched a printer lead on the same day that you received my cheque. I would like to thank you for that very much. That is a service I have been unable to obtain elsewhere. In early December I wrote to Datal Electronics for some advice about a product that I

had bought from them. I have yet to receive a reply, as with other companies I have written to in the past.

I have been a subscriber of FORMAT since March of last year and have thoroughly enjoyed the reading. I have a Spectrum +2A, and 48K+ and the ever faithful rubber-keyed Spectrum. I have connected to my +2A, a PLUS D interface and 3.5" Disc drive, and for Xmas this year I treated myself to a Commodore MPS 1230 printer. I had reservations about compatibility, but need not have worried. With it's emulation of Epson FX80 it is working great! In spite of my inexperience and the fact that the manual is written in what is known as 'Japlish', I have been able to use it with only a few setbacks. If any other readers are looking for a reasonably priced printer that will work with any model Spectrum, I can certainly recommend this one.

I am not an experienced programmer and used to use my machine to play games, albeit of the Chess, Backgammon and Adventure type, with a few simulators thrown in. However, since getting FORMAT I have taken more of an interest in learning to use my machine as it should be. I have invested in SPECFILE+, DISC ORGANIZER and BETA DOS, and I am writing this letter using FASTWORD PLUS, which I think is a great utility. I am now going to make an attempt to read and hopefully understand the 'Machine Code Without Tears' articles currently being written by Carol Brooksbank.

I am physically disabled and have to exist on the allowance paid to me by the state, so I have to count my pennies. I am, however, able to put a little aside each week for my few pleasures, one of which is my computer. I think that FORMAT is one of the best magazines I have subscribed to and is very good value

for money. I intend to eventually have a copy of every issue since you started.

Yours sincerely, K.D.Barrett.

Dear Editor,

I am writing to you, not expecting my letter to be published because I feel that FORMAT is too subservient to the SAM organization and never publishes anything detrimental to Miles and Gordon. I will not repeat my unfortunate experiences with MGT which were the subject of an earlier (unpublished) letter. Had it not been for the kind offices of your advertiser "Mr PBT" I should still be computerless.

Let me say at once that the SAM Coupé has many merits, and on the whole I am very happy with it. However, I am making some criticisms.

The Manual is far from ideal. There are serious omissions which I have been able to rectify only through the kind assistance of Nev Young's "Help Page". a) The opening up of the full memory. b) The use of the F Keys as a numeric pad. c) There is very vague information on the effect of CSIZE on the number of lines on the screen. d) Insufficient information about DEF PROC. e) The command POKE # in Carol Brookbank's program LOGOMAKER does not work (see December number). Also some of the routines do not work:- Line indentation and INSTR (a\$.b\$).

It appears that some of the trouble has arisen because, unlike the Spectrum, SAM has never had a period of evolution but sprang into being like Pallas Athene. MGT tried to do too much in one go. I understand that some of the missing information in the manual came about because it was printed before SAM had reached its final form. If that was the case I would have thought that a supplement could have been issued.

I close with a tribute to Nev Young: his help has been invaluable to me.

Yours sincerely, L.W.Simpson.

Let me deal with the manual first. I was involved in the talks that took place at MGT during early 1989 on what sort of manual was needed. I loaned

Bruce and Alan all the manuals I had accumulated over ten years of working with computers. Some of these were crap (and that is putting it mildly) some were very good. However - NO MANUAL EVER WRITTEN - is ideal for every user. The original manual for the 48k Spectrum is often held up as one of the best ever produced and with that I would agree. But even that suffered from being too technical for the novice, while being difficult for the expert to locate vital bits of information at times.

The SAM manual was written for a target readership - those who were not "brand new" to computing but were not expert either - the average user in other words. The original plan was for four books to be available over a period of time. A simple "Intro to programming", the main manual, an advanced users guide, and the technical manual. We all know that the first and third have not appeared (yet) but with the other two, plus FORMAT things are not too bad. Yes I know there are errors in the manual, but there always are in manuals, and an errata sheet was available from MGT.

By line indentation I presume you mean the LIST FORMAT options, these work ok for me, as does the INSTR command, if you can provide examples of them not working I would be glad to hear from you. As to the POKE # command, that is a DISCIPLE/PLUS D command - nothing to do with SAM so you can't expect it to work.

Finally, I try to be positive, as you say SAM has a lot going for it. If people report problems, that I can reproduce, I pass them on. Ed.

Dear Editor,

What is M.Perry talking about. The All Format Shows are very good. At the last show in London I managed to buy a green screen monitor for use with my Spectrum for just £10, there was also a lot of Spectrum software about.

Yours sincerely, David King.

Dear Editor,

The other day I was ill in bed and bored. I picked up the January issue

of FORMAT and began to read (this doesn't mean FORMAT is boring, far from it). Anyway, I turned to the Letters page and came across the letter from Mr Perry. I read it with interest and then discuss. His comments on the computer fairs were fine. But his comments on SAMCO were wrong and very far fetched. I, for one, had a problem with my SAM last Christmas and SAMCO were the first to help me out. I have spoken to Alan Miles and others at SAMCO many times, about many things, and they have always helped me no end.

SAM Computers have to be the best company for customer care. Ever tried having a casual conversation with Atari or Commodore, impossible. I'm sure many SAM owners will agree. The Coupé is a great machine, and I'm writing this letter using SAM WORD (it is on FRED #15, so go order a copy).

On ending, if M.Perry, or anyone else wishes to write to me my address is 147 Heol Llanishen Fach, Rhiwbina, Cardiff, CF4 6RF. Also, I lost the address of the person who replied to my last letter published in FORMAT, could you please write again so I can get in touch. And any Speccy owner out there, go buy a SAM (sorry Colin MacDonald, a Coupé) and you won't be disappointed.

Yours sincerely, Andrew Hood.

OK, OK, that's enough. The Perry debate has taken up too much room now, so I'm calling a halt.

Since writing last months FORMAT there have been two letters sent by Mr Perry to us and I understand a letter has also been received by SAMCO. Even now, Mr Perry has still made no attempt to phone anyone to try and get matters sorted out. How can I help someone who won't help himself?

Yes I have had several letters from people who have also had problems with their SAM but almost without exception these problems were sorted out by contacting SAMCO.

With the four machines I have purchased I have only experienced two problems. My very first production machine had the NMI button disintergrate - a common problem with

the first batch of machine which was cured by MGT changing to a stronger switch within a couple of months of the launch of the Coupé.

The other problem was when they started fitting the 2meg drives units which were not compatible with Masterdos. Within three days of this problem rearing its head Dr Andy Wright had worked with SAMCO to work out the pokes to get Masterdos working. When Atari changed drives in 1988 it took them FOUR MONTHS to even admit that the problem existed and another TWO MONTHS to provide a fix.

If, as Mr Perry relates in his latest letter his current SAM is not working correctly then he should send the machine back to SAM Computers with CLEAR and EXACT details of how to reproduce the faults he has found. SAMCO will then repair the computer - under the guarantee. Ed.

Dear Editor,

I've recently become the secretary of the Nottingham Microcomputer Club which is in it's 12th year. We have about 65 members with varied interests as you will see from the enclosed magazine.

I can best answer your request for club news by sending a copy of the current and subsequent issues of our quarterly magazine.

In Vol.4 No12, Page 32 of FORMAT, Martin Brownlow suggested issuing a list of local computer clubs. We occasionally receive letters and requests directed to us by John Dale who is database manager of the British Association of Computer Clubs - to which we are affiliated. Perhaps a request to him would produce results, write to him at Banc Y Rhosyn, 14 Bron Y Glyn, Bronwydd Arms, Carmarthen, SA33 6JB.

Thank you for your efforts with FORMAT. I look forward to it every month and think that it is improving all the time.

Yours sincerely, Doug Casterton.

Dear Editor,

The hardcover binders are an excellent idea for keeping my issues of FORMAT safe and in order. I use



Specfile+ to store a list of the articles featured in **FORMAT**.

A small problem arises however when you want to re-read an article on say page 25 of the January issue. You know this issue is somewhere in the middle of the binder, but before you can locate it you have to find the contents page of the issue in question. One way of solving this for the future might be to have all the pages of a volume numbered sequentially.

However, I have another solution that may interest fellow members. The front cover of every issue can be tagged with small self adhesive labels (9mm by 17mm) as follows. Stick a label to the top right hand vertical edge of the front cover of the first issue, so that one half to one third of its width overlaps the edge of the page. Turn the page over and place another label directly over the first. You now have a small tab similar to those on loose leaf separator cards. Note that the sticky labels should be placed with the 17mm dimension vertical. Continue doing this on each front cover but positioning the tab just below the one preceding it so that the last tab on issue 12 is at the bottom right hand edge.

Each tab can now be labeled. I write the issue number on one side of a tab and the abbreviated month name on the other. I hope this is of some interest.

Yours sincerely, Stuart Hughes.

What! Mutilate FORMATS with sticky labels, what is the world coming to? I should have perpetrators shot at dawn. Ed.

Dear Editor,

I am not sure whether you get time to read other computer magazines, and in particular Computer Shopper.

If not, you will be intrigued to learn that this month's 'Programmer's challenge' is to write a Word Search program. No doubt the semi-professionals who tend to respond to this item each month will come up with C++ or COOPS programs, but it will be very interesting to see how they

compare with your excellent BASIC program in December 1991's **FORMAT**.

Yours sincerely, Alan Cox.

Thanks, kind words make my day. Ed.

Dear Editor,

I've read in the February issue of **FORMAT** that Miles and Gordon are interested in writing new software for the Spectrum (I hope not only games). I have a big dream, I would like to see on my Spectrum a real CAD program, something like VU-3d was (even if not 3d) but more similar to the features of AUTOCAD for example; I know that a line-art program needs a lot of memory to store the drawing, but we can store it on disc and work on disc and I think that a very good program could be developed for the happiness of all of us (and our printers, no more bound to the hardcopy of the screen).

I've something in mind and I have already 'imported' AutoCad drawing on the Spectrum and in some ways 'explored' them by zooming some parts (all in basic and awfully slow) but I'm not so skilled to arrive to a satisfying result.

The second thing, could you put an advert on the pages of **FORMAT** to know if it is possible to have KEMSOFT CAD from someone who still has it (possibly on disc) as I can't get it in Italy.

Yours sincerely, Antonio Protopapa.

Kemsoft's PCB Designer is still available direct from them, both on tape and disc and is very widely used (and not just for designing PCBs). There address is: The Woodlands, Kespsey, Worcester, WR5 3NB, England. Ed.

Letter may be shortened or edited to fit on these pages.

This is **YOUR** letters page so it is up to you, our readers, to fill it. Send your letters, on any subject you feel would interest other readers, to our usual address, keep them as short as you can so we can fit in as many as possible.

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# FORMAT

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